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The genus Stenochlaena

LUCIEN MARCUS UNDERWOOD

In no portion of *Synopsis Filicum* does the lack of coördination of the work of other authors manifest itself more strikingly than at page 412 under *Acrostichum sorbifolium*, where the elaborate work of Fée, which had appeared twenty-two years previously, is made to pass for naught, and his seventeen species of *Lomariopsis* are reduced to synonymy. While the elder Hooker was writing the *Species Filicum*, of which the *Synopsis* is a revised and abbreviated digest, Kunze and, later, Mettenius, were describing ferns independently at Leipzig, as was also Presl at Prague, and Fée at Strasburg. The work at each of these centers appears to have gone on in practical independence and without much comparison or coördination. Such species as happened to come to Kew appear to have been reviewed, and the others were often reduced to synonymy with no specimen at hand. Some were never mentioned. The visitation of other centers seems rarely if ever to have been practiced. Presl had no successor to his studies and his still unmounted fern collection exists to-day at Prague, apparently never visited by modern European fern students or monographers. At Berlin, Kuhn was the lineal successor of Mettenius, as Fournier at Paris was the successor of Fée. At Berlin, in addition to the collection of Willdenow, most of the types of Kaulfuss, Kunze, Klotzsch, Mettenius and Kuhn may be seen, and at Paris most of those of Lamarck, Bory, Desvaux, Fée and Fournier are at the museum of the Jardin des Plantes, but neither Hooker nor his successors at Kew consulted them, and to this present year of grace, continental European fern students have never taken the trouble to coördinate them with the Kew collection, but have continued to work on in the same old independent ways.

In attempting to elucidate the American species of *Stenochlaena*, the fact that Hooker had attributed one of our West Indian species to nearly all parts of the tropical world * made it necessary to review the entire genus. During the past summer, while visiting the collections at Vienna, Prague, Berlin, Paris and Kew, the specimens representing this genus were examined comparatively and the following revision is the result of this first synoptical study of a genus based on the materials of all the great fern collections of the world. How different the result appears from that based on the study of the material at a single center may be seen by comparing the present revision with the treatment of the same group in *Synopsis Filicum*, where most of the species of other authors are ruthlessly reduced to synonymy under *Acrostichum sorbifolium*, originally from the West Indies. To the twenty-three Old World species here recognized should be added ten or more which represent the American development of the genus and which will be given a separate treatment. Five species appear in *Synopsis Filicum;* of these three reappear without change; three are here described as new, and the remainder represent species either unknown to the authors of *Synopsis Filicum* or unfortunately reduced to synonymy by them.

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* "West Indies to Peru and South Brazil; Fiji, Samoa, New Caledonia, Philippines, Malaccas, Cochin China, Seychelles, Mascaren Isles, Angola, Guinea Coast." — Syn. Fil. 412.

The genus *Stenochlaena* forms a rather natural group of non-indusiate ferns whose nearest relatives are to be found in the dimorphous species of *Stegania* R.Br. (*Lomaria* Willd.) as suggested in the name (*Lomariopsis*) given to one section of the genus when monographed by Fée sixty years ago. In fact the species with narrow pinnae in the sporophyls have often been described in the genus *Lomaria*, as those with wider pinnae were supposed to have a corresponding relation to *Acrostichum.* At least four genera have been established from among the species, the name *Stenochlaena* being the oldest for any member of the group. In recent papers Dr. Christ still maintains the genera *Lomariopsis* and *Stenochlaena* as distinct, but this seems less rational than to unite them as sections of one genus. It is true that we have two types of venation represented in the group: the first with the lateral veins springing from the midrib, and the second with accessory veins parallel and adjacent to the midrib with the lateral veins springing from them. Pinnae jointed to the rachis occur in species with both types of venation. The species with the second type have spiny leaves, while those with the first type have a normally cartilaginous margin to the pinnae. With these slight differences, it seems better, therefore, to recognize only a single genus with four fairly marked sections which may be distinguished as follows:

Synopsis of the sections of Stenochlaena

Lateral veins springing from a vein lying parallel to the midrib and occasionally connecting with it; margins of the pinnae spiny.
  Sporophyls simply pinnate. § **Eustenochlaena.**
  Sporophyls normally bipinnate. § **Cafraria** Presl.
Lateral veins springing direct from the midrib; pinnae not spiny.
  Climbing stems spiny, not scaly, naked; leaves trimorphous. § **Teratophyllum** Mett.
  Climbing stems not spiny, usually more or less densely scaly. § **Lomariopsis** Fée.

The species of the first three sections are all confined to the tropics of the Old World. Those of the section *Lomariopsis* are divided between the tropics of the Old and New worlds, approximately in the ratio of three to two.

§ 1. EUSTENOCHLAENA

The genus *Stenochlaena* was founded by John Smith in 1841 and was based on *Acrostichum scandens* * as a type. The species closely allied to this, then, must constitute the section *Eustenochlaena*, notwithstanding the fact that there has been a different use for the term.† There are three species of this section, one of which has a wide range and presents considerable variation from its various stations. The other two species have quite a limited range. They may be easily separated by the following synopsis:

Pinnae of the sporophyls narrow, 3 mm. wide. 3. *S. palustris.*
Pinnae of the sporophyls wider, 5–10 mm. wide.
  Pinnae 3.5–4 cm. wide, rounded-obtuse at the base; pinnae of the sporophyls narrow, 5 mm. wide. 2. *S. Milnei.*
  Pinnae 3 cm. wide, truncate at the base; pinnae of the sporophyls wider, 10 mm. wide. 1. *S. laurifolia.*

1. STENOCHLAENA LAURIFOLIA Presl, Epim. Bot. 164. 1851 (type from Luzon, *Cuming 226*).

Acrostichum laurifolium Hook. Sp. Fil. 5: 250. 1864.—Syn. Fil. 412.

RANGE: Philippine Islands.

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* SMITH (Jour. Bot. Hook. 3: 401. 1841) wrongly attributes this species to Linnaeus. His context, however, makes clear the species intended. Later he included members of other sections in the genus (Jour. Bot. Hook. 4: 149. 1841).

† DIELS, Die natürlichen Pflanzenfamilien 1^4: 251. 1899; where the term *Eustenochlaena* is used to include also species of *Lomariopsis* Fée.

2. **Stenochlaena Milnei** sp. nov.

Creeping stems unknown; leaves pinnate; pinnae 6–7- (or more) jugate, rigid, coriaceous, rounded-obtuse at base, nearly sessile; 20 cm. or more long, 3–3.5 cm. wide, the margins thickly beset with small spines, the apex long-acuminate; veins close, 17–18 spaces to the centimeter, simple or occasionally forked at or near the base; surfaces smooth and shining; sporophyls pinnate; the pinnae about 9-jugate, 25 cm. or more long, 5 mm. wide, tapering at the apex, inclined to be revolute when dry; rachises pallid, smooth, rather stout.

SOLOMON GROUP: *Milne 518* (type), K; *ibid. 590*, K.

NEW GUINEA: *Honkmann*, K (fragment); *Armit*, K (sporophyl only).

ADMIRALTY ISLANDS: *Moseley* (Challenger Exped.), K.

S. Milnei is represented at Kew by fragmentary materials which do not show the stem characters; it is, however, sufficiently differentiated from the variable *S. palustris*, and especially from *S. laurifolia*, under which Hooker cites the type, to justify separation even on present materials. Specimens have been seen only at Kew.

3. STENOCHLAENA PALUSTRIS (Burm.) Beddome, Suppl. Ferns India 26. 1876.

Polpypodium palustre Burm. Fl. Ind. 234. 1768. (Type from Ceylon.)

Onoclea scandens Sw. Syn. Fil. 112, 309. 1806. (Change of Burmann's specific name without warrant.)*

Lomaria scandens Willd. Sp. Pl. **5**: 293. 1810.

Lomaria ? juglandifolia Presl, Rel. Haenk. **1**: 52. 1825. (Type from the Philippines, *Haenke*.) †

Lomaria ? Haenkeana Presl, Rel. Haenk. **1**: 53. 1825. (Type from Sorzogon, Luzon, *Haenke*.)

Stenochlaena scandens J. Sm. Jour. Bot. Hook. **3**: 401. 1841.

Stenochlaena Blumeana Presl, Epim. Bot. 163. 1851. (Type from Tranquebar, *Bottler*.)

Stenochlaena Haenkeana Presl, Epim. Bot. 165. 1851.

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*Swartz, moreover, has his references to Burmann sadly mixed and attributes the species to Linnaeus who apparently never mentioned it. John Smith copied Swartz' error in establishing the genus *Stenochlaena*.

† Like many other plants in this work Presl reported this originally from Mexico but corrected it in his herbarium and in his later writings.

Acrostichum scandens Hook. Sp. Fil. **5**: 249. 1864.—Syn. Fil. 412. 1868.

Lomariopsis palustris Mett. Ann. Mus. Lug.-Bat. **4**: 294. 1869.

ICON.: Rheede, Hort. Malab. **12**: *pl. 35.* 1703; Burmann, Thes. Zeyl. *pl. 46.* 1737; Rumphius, Herb. Amboin. **6**: *pl. 31.* 1750; Schkuhr, Crypt. Gewächse *pl. 106, 107;* Hooker & Bauer, Gen. Fil. *pl. 105 B;* Fée, Mém. Foug. **5**: *pl. 5 A. f. 2;* Beddome, Ferns Southern India *pl. 201.*

RANGE: India from Punjab?, Sikkim and Ceylon, to Malacca, Java, Sumatra, Borneo, the Philippines, to Queensland, Fiji, Samoa, and Tonga Islands.

§ 2. CAFRARIA Presl.

This group was set apart by Presl as a section in 1851.* It agrees with *Eustenochlaena* in venation and in the marginal spines of the pinnae, but differs in the bipinnate sporophyl, a character wholly insufficient to separate it as a genus. Fée founded the genus *Lomariobotrys* on the same group in 1852.

A single species:

4. **Stenochlaena tenuifolia** (Desv.)

Lomaria tenuifolia Desv. Berl. Mag. **5**: 326. 1811. (Type from Madagascar.)

Lomaria Meyeriana Kunze, Linnaea **10**: 509. 1836. (Type from Natal?, "inter Omtendo et Omsamculo," *Drege.*)

Stenochlaena Meyeriana Presl, Epim. Bot. 166. 1851.

Lomariobotrys Meyeriana Fée, Mém. Foug. **5**: 46. *pl. 5A.* 1852.

Lomariobotrys tenuifolia Fée, Mém. Foug. **5**: 46. 1852.

Acrostichum Meyerianum Hook. Garden Ferns *pl. 16.*. 1862.—Sp. Fil. **5**: 250. 1864.

Acrostichum tenuifolium Baker, Syn. Fil. 412. 1868.

ICON.: Hooker, *loc. cit.;* Fée, *loc. cit.*

RANGE: Africa from the Cape of Good Hope and Natal to Nossibé, Madagascar, Mauritius, and the Comoro Islands.

There are specimens in the Kew herbarium in which there are some simply pinnate sporophyls as well as the normally bipinnate ones, said to have grown on the same plant.

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*In publishing *Lomariobotrys*, Fée adds the date 1851, citing *Cafraria* Presl, Epim. Bot. 166. This seems to fix the date of the Epim. Bot. as 1851 rather than 1852 (cf. Bull. Torrey Club **32**: 590, *note*). This also enables us to cite 1852 instead of "1850–52" for Fée's fifth Memoir.

§ 3. TERATOPHYLLUM Mett. (in part).

In 1869 Mettenius established the genus *Teratophyllum* based on *T. aculeatum* (*Lomaria aculeata* Bl.) and *T. articulatum* (*Polybotrya articulata* J. Sm.). The latter species forms the type of the genus *Arthrobotrya* J. Sm., and appears to be a valid genus. In this group the rootstock is spiny and naked, the veins are free, the pinnae are articulated to the rachis, and the leaves are trimorphous. In addition to the ordinary foliage leaves which are simply pinnate like those of the other sections of the genus, there are accessory bipinnate or even tripinnate leaves which often lie more closely appressed to the surface over which the plant climbs. A good illustration of this feature may be seen in Karsten, Ann. Bot. Jard. Buitenzorg **12**: *pl. 14*, copied in Velenovsky's Vergleichende Morphologie der Pflanzen 200, *f. 128*. 1905. Such dissected leaves are not unknown in other ferns, occurring even in some of the *Cyatheaceae*.

There are three species known at present, all confined to the East Indian region both continental and insular. They may be distinguished as follows:

Foliage green; pinnae 1.5–2.5 cm. wide, nearly sessile. 5. *S aculeata.*
Foliage pink or violet when dry; pinnae 1 cm. or less wide.
  Pinnae obtuse or truncate at the base, short-stalked; sporophylary pinnae as long as the sterile. 6. *S. gracilis.*
  Pinnae cuneate at the base, long-stalked; sporophylary pinnae twice the length of the sterile. 7. *S. Williamsii.*

Besides the above there are indications of a fourth species, from Perak, with green foliage, the pinnae stalked (1–1.5 cm.), subcoriaceous, and 2.5–3 cm. wide. Specimens exist at Kew.

5. STENOCHLAENA ACULEATA (Blume) Kunze, Bot. Zeitung **6**: 142. 1848.

Lomaria aculeata Blume, Enum. Pl. Jav. 205. 1828. (Type from Java.)

Lomariopsis spinescens Fée, Mém. Foug. **2**: 71. *pl. 33. f. 1.* 1844–5. (Based on the above with an unwarranted change of of specific name.)

Lomariopsis ludens Fée, Mém. Foug. **2**: 70. *p. 30.* 1844–5. (Type from Singapore, *Gaudichaud.*)

Davallia achillaefolia Wall. Cat. n. 248; Hooker, Sp. Fil. **1**: 195. *pl. 56 D.* 1846. (Type from Penang, *Wallich.*)

Teratophyllum aculeatum Mett. Ann. Mus. Bot. Lug.-Bat. **4**: 296. 1869.

Acrostichum aculeatum Racib. Pter. Fl. Buitenzorg 53. 1898.

ICON.: Fée, *loc. cit.*; Hooker, *loc. cit.*; Karsten, Ann. Jard. Bot. Buitenzorg **12**: *pl. 14.* 1893.

RANGE: Perak, Tenasserim, Java, Borneo, and the Philippines. Usually appears in herbaria in a sterile condition. A var. *inermis* Mett., without spines on the rootstock, has also been described (Mett. *loc. cit.* 297).

6. STENOCHLAENA GRACILIS (Blume) Kunze, Bot. Zeitung **6**: 142. 1848.

Lomaria gracilis Blume, Enum. Pl. Jav. 205. 1828.

Acrostichum gracile Racib. Pter. Fl. Buitenzorg 53. 1898.

RANGE: Java.

7. **Stenochlaena Williamsii** sp. nov.

Stems pink, 3–8 mm. thick, widely creeping, densely rooting below, spiny above; foliage leaves scattered, about 6 cm. apart, up to 60 cm. long, the stalks pink with a slight tinge of brown, slightly fibrillose, with a slight ridge and groove along the upper side, pinnate; the pinnae deciduous, stalked (5 mm. or more), lanceolate, 12–15 cm. long, 1.5 cm. wide, cuneate tapering at the base, acuminate at the apex, the margin slightly repand or entire, the surfaces smooth, the midrib prominent, reddish, with occasional fibrils; veins distinct, close (about 15 spaces to 1 cm.), simple or forked; sporophyls pinnate, the pinnae deciduous, long-stalked (8–10 mm.), 25–28 cm. long, 1.5–2 mm. wide, with conspicuous midrib; secondary foliage leaves 1–2 cm. long (or larger in young plants), bipinnatifid, membranous, in growth appressed to the substratum.

PHILIPPINES: Lamao River, Mt. Mariveles, Prov. Bataan, Central Luzon, alt. 120 meters, *Williams 684.* Type in the herbarium of the New York Botanical Garden.

Growing on trees. "Young plants with finely dissected leaves." Unfortunately few of the secondary foliage leaves were secured, so that their exact relation to the others is not clear in the type specimen. The species differs from *S. aculeata* in its narrow pink pinnae, the color appearing in every part of the plant when dry. From *S. gracilis* it differs in its cuneate acute bases of the pinnae and the elongate pinnae of the sporophyls.

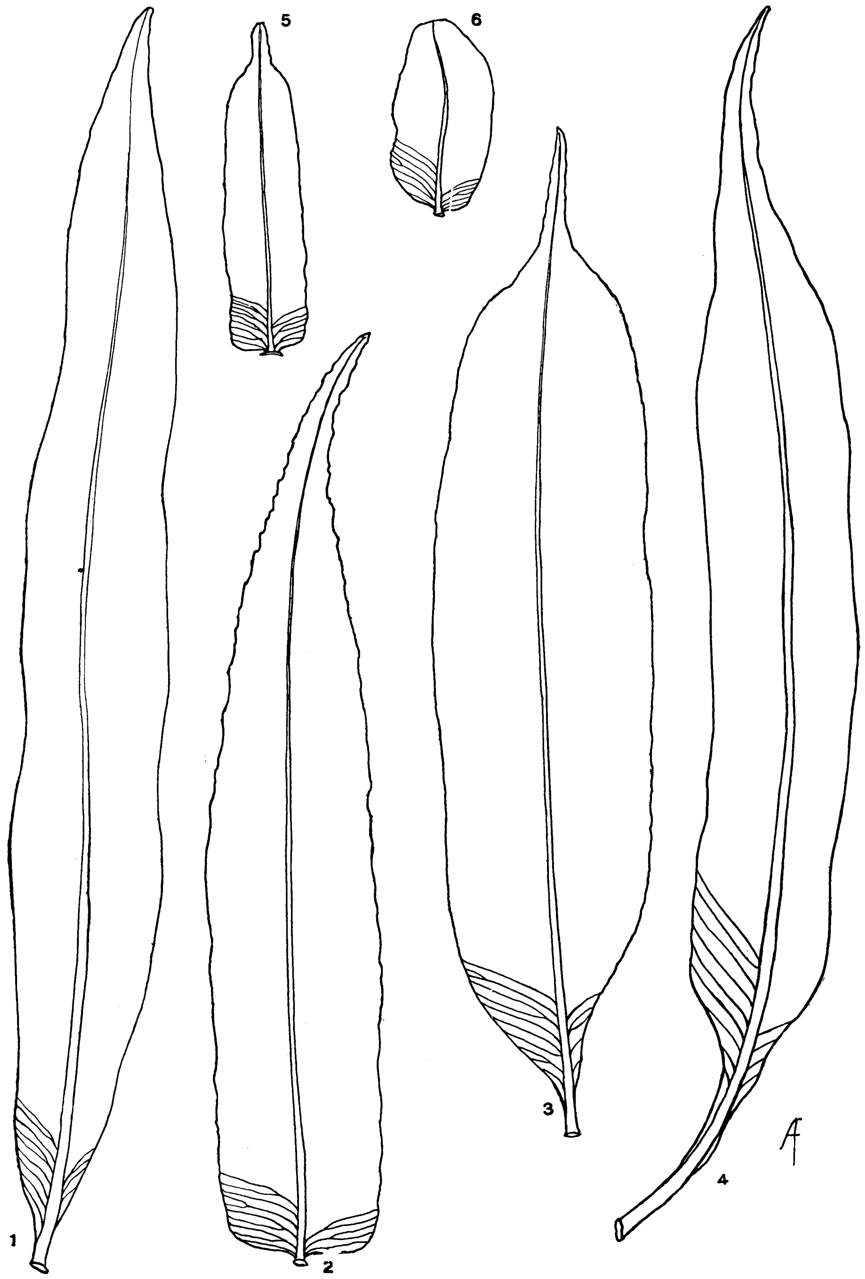
§ 4. LOMARIOPSIS Fée

The numerous members of this section, which were so summarily crowded into one species by Hooker, form a natural group in which free veins rising directly from the midribs, scaly climbing rootstocks rarely if ever armed with prickles, and pinnae continuous with the rachis form the most obvious characters. The species are widely distributed and have thereby become notably diverse in the various parts of the earth where they now appear. As a rule the individual species have very clearly marked characters combined with a narrow geographic range. It is therefore somewhat simpler to treat of the great continental regions separately. The American species will form the subject of a separate paper. The accompanying figures of normal lateral pinnae, drawn natural size, will show something of the diversity of leaf-form in the genus in the Old World.

I. THE SPECIES OF AFRICA AND ITS ISLANDS

Willemet (1796) was the first to describe a species of this group from Africa under the name of *Osmunda pollicina.* Later species have been separated by Bory, Fée, Kunze, Mettenius, Kuhn, and Baker, who have each added a single species to the flora, and an eighth is here published as new. The species range from Sierra Leone to Fernando Po on the west coast and across the continent to the islands of Mauritius and Madagascar. Their differential characters will become apparent in the following synopsis :

- Pinnae truncate at base.
  - Pinnae 5 cm. or less long, those of the lowest third of the leaf gradually decreasing to mere auricles. 11. *S. decrescens.*
  - Pinnae 15 cm. long, only the lowest 2–3 pairs slightly smaller. 16. *S. Mannii.*
- Pinnae cuneate or rounded-obtuse at the base, never truncate.
  - Lateral pinnae under 7 cm. long, rounded-obtuse at the base.
    - Pinnae pointed at the apex, 7 by 2 cm.; pinnae of the sporophyls 7.5 cm. long by 5 mm. wide. 20. *S. pollicina.*
    - Pinnae rounded at the apex, suboval.
      - Pinnae of the sporophyls 10–12 mm. long by 2–3 mm. wide, obtuse at the apices. 9. *S. buxifolia.*
      - Pinnae of the sporophyls 3 cm. long by 4–5 mm. wide, pointed at the apices. 15. *S. lomarioides.*
  - Lateral pinnae 10–15 cm. or more long, cuneate at the base.



Some of the species confused under *Stenochlaena sorbifolia*. Normal lateral pinnae, natural size. 1. *S. Pervillei*. 2. *S. Mannii*. 3. *S. guineensis*. 4. *S. Brackenridgei*. 5. *S. decrescens*. 6. *S. lomarioides*.

Pinnae broadly elliptic, 3–3.5 cm. wide, abruptly narrowed to an acuminate apex. 12. *S. guineensis.*

Pinnae lanceolate, scarcely over 2 cm. wide, tapering to an acuminate apex.
  Pinnae of the sporophyls short-stalked, 2 mm. or less wide. 19. *S. Pervillei.*
  Pinnae of the sporophyls long-stalked, 4–6 mm. wide. 23. *S. variabilis.*

Species inquirendae

1. Specimens from Namuli, Makua country, East Tropical Africa, collected by *Last* (Herb. Kew.) have only sterile leaves, 9–10-jugate, but these do not agree with those of any known species. More information is necessary before locating a ninth species from Africa.

2. *Polypodium* (?) *binerve* Hook. Sp. Fil. 4: 176. *pl. 273B.* 1862, is placed by Mr. Baker as "one of the abnormal conditions of *Acrostichum sorbifolium*" (Syn. Fil. 323). It may represent a good species when its sporophyls become known. It has of course no relation to *Polypodium* other than that it is a fern, and none to *Stenochlaena sorbifolia*, but is either a distinct species or less likely a juvenile state of some one already known.

2. THE SPECIES OF THE EAST INDIAN AND AUSTRALIAN REGIONS AND OF THE PACIFIC ISLANDS

Of the eight species belonging to this region, three were described in Fée's original monograph in 1844, two were described by Carruthers in *Flora Vitiensis* and appear entirely to have escaped the notice of the Kew botanists, and one each was added by Presl, Brackenridge, and Mettenius. Most of the species are very clearly marked and not one of them approaches *S. sorbifolia*, with which all of them have been confused. The following synopsis will differentiate the species:

Pinnae narrow, 1.5 cm. or less wide.
  Pinnae serrulate; veins stopping short of the margin; pinnae of the sporophyls 1.5–2 mm. wide. 13. *S. Hügelii.*
  Pinnae entire or barely repand; veins running into a cartilaginous margin; pinnae of the sporophyls 4–5 mm. wide. 14. *S. leptocarpa.*
Pinnae wider, 2–5 cm.
  Pinnae of the sporophyls 2 mm. or less wide. 8. *S. Brackenridgei.*
  Pinnae of the sporophyls wider, 4–8 mm. wide.
    Pinnae of the sporophyls 8–15 cm. long, short-stalked.
      Foliar pinnae 2 cm. wide, tapering at the apex. 17. *S. Novae-Caledoniae.*

Foliar pinnae 3.5–5 cm. wide, abruptly acuminate at the apex.
10. *S. cochinchinensis.*
Pinnae of the sporophyls 20–30 cm. long, long-stalked (2 cm.).
Pinnae of the sporophyls gradually tapering at the apex.
22. *S. Smithii.*
Pinnae of the sporophyls abruptly acuminate at the apex.
Pinnae narrow, about 2 cm. wide. 18. *S. oleandrifolia.*
Pinnae wider, 3–3.5 cm. wide, few-jugate.
21. *S. Seemannii.*

The last two species are quite near to each other in form and general appearance and may represent only two phases of the same species. Since the meager materials represented in herbaria are insufficient, it is better to keep them apart, as they have already been established, awaiting further collection in the South seas. With the strong possibility of distinctness, this is a more rational proceeding than to unite them. This is a far different proposition from separating doubtful things in the event of a possibility of specific distinctness. The geographic range of the two species is practically the same, which further decreases the probability of specific distinctness. As a species or group they are entirely distinct from any other members of the section.

Species excludenda

STENOCHLAENA FEEGEENSIS Brack. Filices U. S. Expl. Exped. 78. *pl. 11. f. 1.* 1854. (Type from the Fiji Islands; *Wilkes Exped.*)

The synonymy and distribution of the species of § *Lomariopsis* of the Old World are given in an alphabetical series:

8. **Stenochlaena Brackenridgei** (Carruth.) [FIGURE 4.]

Lomariopsis Brackenridgei Carruth. Fl. Vit. 373. 1871. (Type from the Fiji Islands.)

RANGE: Known only from its type locality.

9. **Stenochlaena buxifolia** (Kunze).

Acrostichum buxifolium Kunze, Die Farrnkr. **1**: 171. *pl. 72.* 1845. (Type from Madagascar.)

ICON.: Kunze, *loc. cit.*

RANGE: Known only from Madagascar.

Polypodium orbiculatum Poir. Encyc. Méth. Bot. **5**: 525 (type locality, Java) is referred to this species as a synonym by Kuhn, but in the absence of any type specimen and with a widely different type locality it is much safer to leave the matter in abeyance.

10. **Stenochlaena cochinchinensis** (Fée).

Lomariopsis cochinchinensis Fée, Mém. Foug. **2**: 66. *pl. 26.* 1844–5. (Type from Cochin China, *Herb. Mus. Paris.**)

ICON.: Fée, *loc. cit.*

RANGE: Cochin China; known only from the original collection by Gaudichaud.

11. **Stenochlaena decrescens** (Baker) [FIGURE 5.]

Acrostichum decrescens Baker, Syn. Fil. 412. 1868. (Type from the Cameroons, West Tropical Africa, *Mann 1391.*)

RANGE: Known only from its type collection (Kew).

12. **Stenochlaena guineensis** (Kuhn) [FIGURE 3.]

Lomariopsis guineensis Kuhn, Fil. Afr. 53. 1868. (Type from Fernando Po, *Mann 139.*)

Acrostichum guineense Carruth. Cat. Afr. Pl. Welwitsch **2**: 276. 1901.

Foliar pinnae 10 × 3 cm.; sporophyllary pinnae 10 cm. × 4 mm.

RANGE: Fernando Po, St. Thomas, Congo, Angola and Sierra Leone. Sterile fragments from the last named region at Kew have much larger pinnae 17 × 4 cm., but are not otherwise distinct.

13. **Stenochlaena Hügelii** (Presl) Fée in herb. Vindob. [FIGURE 9.]

Lomariopsis Hügelii Presl, Epim. Bot. 263. 1851. (Type from New Zealand, *Hügel.*)

Lomariopsis sorbifolia var. resectum [*sic*] Christ in Warburg, Monsunia **1**: 56. 1900. (Type from Cairns, North Queensland, *Warburg 19286.*)

This clearly marked species, which naturally has no near resemblance to *S. sorbifolia* of the American tropics, was well characterized by its author in the corrections to the text of *Epimeliae Botanicae*, and for this reason has eluded discovery for a long time. A long manuscript description under a new name by F. Mueller appears in the Kew herbarium with specimens from Rockingham

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* We were unable to find the type in Paris collected by Gaudichaud, but there is a cotype in the herbarium at Berlin.

Bay, Queensland. Warburg's specimens represented at the Berlin herbarium differ mainly in having somewhat shorter pinnae with their upper basal angle more truncate than in Presl's plant. The venation and margins of the pinnae suggest *Plagiogyria*, but there is apparently no indusium. It forms a clearly marked species from a region inhabited by no other species of this section.

14. **Stenochlaena leptocarpa** (Fée).

Lomariopsis leptocarpa Fée, Mém. Foug. **2**: 69. *pl. 29.* 1844–5. (Type from the Philippines, *Cuming 132.*)

Lomaria spectabilis Kunze, Bot. Zeitung **6**: 144. 1848. (Type from Pangarango, Java, *Zollinger 3130.*)

Lomariopsis spectabilis Mett. Fil. Hort. Bot. Lips. 22. 1856.

Acrostichum spectabile Racib. Pter. Fl. Buitenzorg 54. 1898.

ICON: Fée, *loc. cit.*

RANGE: Java and the Philippines.

We have not seen Fée's own specimen of this species, which is now in storage with the Cosson herbarium at the Paris Museum. This number of Cuming in the general collection of the herb. Mus. Paris, does not agree with Fée's excellent figure, but is clearly *S. Smithii.* Original specimens from Mettenius' herbarium agree perfectly with Fée's plate, as does Raciborski's recent excellent description.

15. **Stenochlaena lomarioides** (Bory) [FIGURE 6].

Acrostichum lomarioides Bory, Belang. Voy. Bot. 21. *pl. 2.* 1833. (Type from Ile de France, *Belanger.*)

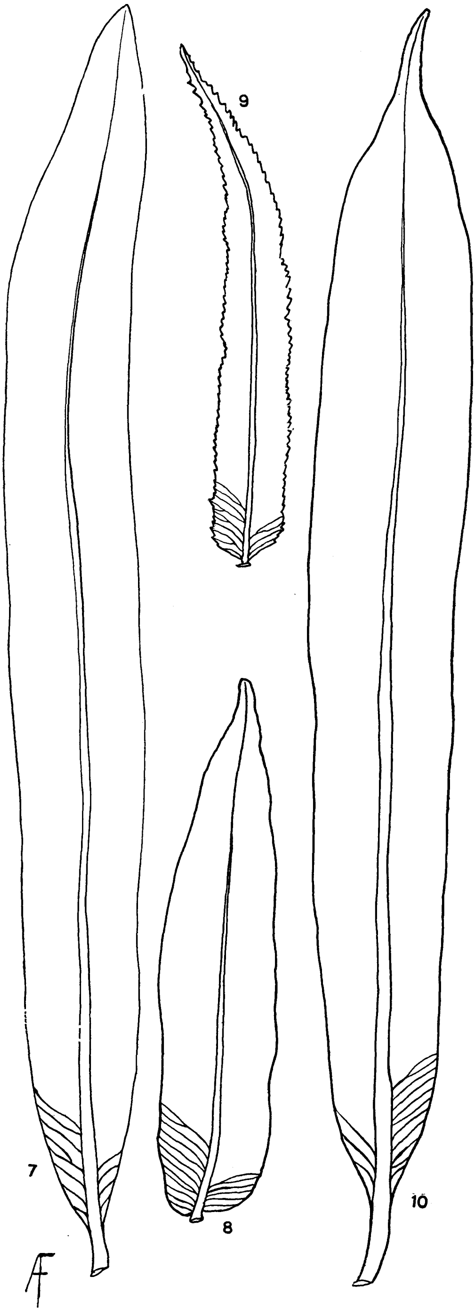
Lomariopsis Boryana Fée, Mém. Foug. **2**: 68. 1844–5. (Specific name changed from the above without apparent warrant.)

ICON.: Bory, *loc. cit.*

RANGE: Bourbon.

16. **Stenochlaena Mannii** sp. nov. [FIGURE 2.]

Stems stout, climbing, 1.5 cm. or more in diameter, densely covered with dark-brown scales; stipes scattered, stout, 20–30 cm. long, densely covered with similar dark-brown scales; sterile leaves pinnate, about 19-jugate, the pinnae closely placed, up to 17 cm. long by 2 cm. or more wide, the lowest two or three pairs slightly shorter, the upper gradually reduced to 3–5 cm. long, the terminal similar but larger (8 cm. long); pinnae rounded-truncate at the base, gradually tapering to an acute point, margins undu-



Some of the species confused under *Stenochlaena sorbifolia*. Normal lateral pinnae, natural size. 7. *S. Novae-Caledoniae*. 8. *S. pollicina*. 9. *S. Hügelii*. 10. *S. oleandrifolia*.

late, midribs with occasional scales; rachis strongly margined above, more or less scaly throughout; sporophyls pinnate, the pinnae 26-jugate, gradually diminishing above and below, the longest (medial) 11 cm. long by 5–7 mm. wide at the rounded base, tapering gradually to a point; rachis similarly scaly and margined above.

FERNANDO PO: 5,000 ft., 1860, *Mann 354* (type), K (three sheets) *ibid.* 3,000 ft. *446*, K.

CAMEROONS: *Kalbreyer 188*, K (slightly smaller; sterile leaves 28-jugate); *H. H. Johnston 146*, K (still smaller; sterile leaves only, 24-jugate.)

17. **Stenochlaena Novae-Caledoniae** (Mett.) [FIGURE 7.]

Lomariopsis Novae-Caledoniae Mett. Ann. Sci. Nat. IV. **15**: 58. 1861. (Type from Poila, New Caledonia, *Vieillard 1529.*)

RANGE: Known only from its type collection. The species resembles *S. Pervillei* in the form of the pinnae, but differs widely in the sporophyls.

18. STENOCHLAENA OLEANDRIFOLIA Brack. Filices U. S. Expl. Exped. 75. 1854. (Type from the Fiji Islands, *Wilkes.*) [FIGURE 10.]

RANGE: Fiji Islands and New Hebrides.

19. **Stenochlaena Pervillei** (Mett.) [FIGURE 1.]

Lomariopsis Pervillei Mett.; Kuhn, Fil Afr. 53. 1868. (Type from the Seychelles Islands, *Perville 98.*)

RANGE: Known only from the type locality.

20. **Stenochlaena pollicina** (Willemet) [FIGURE 8].

Osmunda pollicina Willemet, Ann. Bot. Usteri **6**^{18}: 61. 1796. (Type locality, Mauritius, Mt. Pollex?.)

Lomaria fraxinea Willd. Sp. Pl. **5**: 294. 1810. (Type locality, Mauritius, and also cites *Osmunda pollicina* as a synonym!)

Lomaria integrifolia Kaulf.; Sprengel, Syst. Veg. **4**: 63. 1827. (Type from Mascarine Islands.)

RANGE: Mauritius, Bourbon, Madagascar, Mascarene Islands.

21. **Stenochlaena Seemannii** (Carruth).

Lomariopsis Seemannii Carruth. Fl. Vit. 373. 1873. (Type from the Fiji Islands, *B. Seemann 712*).

RANGE: Fiji Islands and New Hebrides.

22. **Stenochlaena Smithii** (Fée).

Lomariopsis Smithii Fée, Mém. Foug. **2** : 71. *pl. 33. f. 2 ; pl. 53.* 1844–5. (Type from the Philippines, *Cuming 143.*)

ICON : Fée, *loc. cit.*

RANGE : Philippine Islands.

23. **Stenochlaena variabilis** (Willd.).

Lomaria variabilis Willd. Sp. Pl. **5** : 294. 1810. (Type from Mauritius.)

Osmunda trifrons Bory, Voyage **3** : 163. 1804. (*Nomen nudum.*)

Lomariopsis variabilis Fée, Mém. Foug. **2** : 70. *pl. 31. 32.* 1844–5.

Lomariopsis cuspidata Fée, Mém. Foug. **2** : 68. *pl. 27.* 1844–5. (Type from Mauritius.)

ICON : Fée, *loc. cit.*

RANGE : Known only from Mauritius.

We cannot separate Fée's two species, of which he gives excellent plates ; the type number of his *L. cuspidata* (*Sieber 22*) is also cited under *L. variabilis !*

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